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Soil and Water Conservation News

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Comments:
From the SCS Chief

Nonfederal contributions to conservation district programs are estimated to be $262 million for fiscal year 1981 (compared with $114 million 10 years ago).

Of that amount, local governments contributed over $100 million, up more than $14 million from fiscal year 1980. Others gave more than $84 million—including private citizens, watershed associations, conservation district boards, drainage districts, and planning and development boards. That total was 55 percent more than just 10 years ago.

In fiscal year 1981, State legislatures, as well as county and city governments, made direct appropriations of more than $169 million for conservation programs, a sizeable increase when compared to the $14 million appropriated in 1962 and $36 million in 1972.

Contributions came in many different forms, such as office equipment; clerical assistance; planting stock; endowments or grants for demonstration farms; land easements; radio and TV announcements; and time spent by civic, Scout, and church groups in promoting conservation programs.

Clearly, concern by State and local governments over the degradation of America's soil and water resources is increasing; and so is their commitment to do more about it, even in a time when they too are faced with tough decisions on where to channel their funds.

It isn't the size or income of a State that determines the amount of its contributions. Iowa, for example, is the leader among State governments, and Nebraska's local governments are way ahead of those in other States. As we all know, of course, the largest share of the cost of conservation continues to be that contributed by the individual land user.

I have never seen more awareness of the need for soil and water conservation; more concern for greater cooperation among local and State governments and the Federal Government in solving conservation problems; more dedication in the quest for a better soil and water conservation effort.

Increasing local and State aid means that more soil and water conservation is applied to the land, and that the job is being done not just with Federal dollars but through a true partnership. It means that the public is willing to make a financial commitment to fight soil erosion, conserve water, reduce flooding, and protect water quality. It means that the individuals, groups, and organizations with whom we've been working closely over the years remain concerned, dedicated partners.

Most importantly, it means that we in USDA have a responsibility to respond to the public's commitment with a renewed commitment of our own to help solve priority conservation problems as a member of the team.

Cover: A Carver County, Minn., farmer plants a new crop into residue left from the previous year's harvest. Conservation tillage was used on an estimated 72 million acres of cropland in 1981. See *Conservation Highlights 1981* beginning on page 11. (Photo, Gene Alexander, visual information specialist, Midwest National Technical Center, SCS, Lincoln, Nebr.)

John R. Block
Secretary of Agriculture

Norman A. Berg, Chief
Soil Conservation Service

All programs of the U.S. Department of Agriculture are available to everyone without regard to race, creed, color, sex, age, or national origin.

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News Briefs

Speakers Stress Economics, Teamwork, and Communication at NACD Convention

A record number of people met in Phoenix, Ariz., February 7–11, for the National Association of Conservation District's (NACD) 36th annual convention.

The more than 1,900 registrants participated in 26 discussion forums conducted by NACD's 11 national committees and 4 special committees. Most of them also attended the closing banquet to hear Secretary of Agriculture John R. Block.

Secretary Block acknowledged NACD's important role in achieving the conservation of our natural resources. He indicated that because of his early and continued recognition of the importance of conservation, he has designated resource conservation as one of USDA's top priorities. However, he indicated that our first step is to develop an improved economy.

"A prosperous farmer, rancher, or forester is more likely to be a good conservationist," Secretary Block said. "But looking at the country as a whole, we do have to draw the line. When funds and other resources are scarce, we have to have a pecking order. That's why we've set priorities."

According to Secretary Block, the Reagan administration is "attacking those resource problems that are really important to the Nation and we are doing it in ways that are just as effective as increasing Federal funding. We are doing it with our support of existing USDA conservation programs and through our efforts to make farming and ranching more profitable.

"We are doing it through cooperation and teamwork," he added. "The Department will cooperate with conservation districts, local and State governments, farm organizations, and the farmers and ranchers of this country who have been concerned about their land—to a degree that has never been realized before."

Lyle Bauer, NACD's past president, echoed Secretary Block's joining of a healthy conservation program to a stronger economy. In his final speech as president, Bauer said, "We cannot have high farm prices without a strong conservation program, and we can't have a good conservation program without strong farm prices. We will need an entirely new way to link the two together."

Bauer added, "The Federal Government must maintain a significant national commitment to soil and water conservation. The welfare of the land and the welfare of each and every citizen of this Nation are inseparable. Conservation of farmland is not a farm problem, it is a national need. Every citizen must be involved. . .Federal programs help do that."

Bauer called for NACD—as well as every district supervisor, conservation district board, and State commission—to continue to build their roles as providers of information. "Our influence is built by being helpful, by being willing to develop facts and figures to support our arguments. The problems are going to get more complex, and the need for private, grassroots opinion in Washington will be even more acute."

To achieve greater economic freedom, Americans need to join together in a rededication to hard work, according to Scott H. Buzby, executive vice president of the Goodyear Tire

and Rubber Company, in his speech at Tuesday's luncheon.

"We worked our way into some of our current problems. But, we can work our way out—with a cohesive national attitude shared by business, industry, labor, government, and education," Buzby told the large crowd.

"It is not an over-dramatization to say the U.S. economy is at a crossroads. It could turn in the direction of an increasingly controlled society. . .or it could move toward more economic freedom, with less government inhibition," Buzby said.

He warned the attendees against complacency in the farm community. Should you neglect to work continuously on new and improved technology or fail to continue your conservation programs, he told them, foreign agriculture may suddenly catch up as it has with other American industries.

Buzby concluded by saying, "I believe the United States has shaken off the lethargy of the seventies and the defeatist complex that followed Vietnam and Watergate. It has already embarked on what the President has called the 'New Beginning.' But, it is only a start. Continued momentum requires continued work by a unified people sharing positive attitudes."

Milton E. "Bud" Mekelburg, NACD's president from Yuma, Colo., accepted the challenge of continuing NACD's role in communicating the importance of conservation and agriculture as he received the gavel from Lyle Bauer. His first act was to appoint Vice President Clarence W. Durban of Plain City, Ohio, to chair an "Issues for the 80's" committee to develop directions for NACD.

Charlotte Nichols,
director of communications, National Association of Conservation Districts, Washington, D.C.

Hank Wyman,
public information officer, SCS, Davis, Calif.

Joyce Magidson,
public information officer, Tonto National Forest, Forest Service, Phoenix, Ariz.

Jack de Golia,
public information officer, Bureau of Land Management, Phoenix, Ariz.

SCS Identifies Priority Conservation Research Needs

The Soil Conservation Service has identified top priority needs for research and education to support local soil and water conservation work.

SCS Chief Norman A. Berg listed the "most wanted" research in a report to three other USDA agencies—the Agricultural Research Service, the Cooperative State Research Service, and the Extension Service.

He listed these actions as of the "highest" priority:

- Accelerate extension educational efforts in conservation tillage.
- Continue and expand research to determine the potentials and limitations of various soils, plants, and machines for conservation tillage.
- Accelerate research to predict more accurately the effects of erosion on soil productivity.
- Find more cost-effective ways to prevent and treat gullies.
- Continue development of methods for estimating effects of soil and water conservation practices on flood runoff.
- Accelerate research to develop crop varieties that tolerate flooding.
- Continue research to determine the best use and timing of irrigation for various crops, soils, and climates.
- Get information on water management research to the field more quickly.
- Determine the effects of high-intensity grazing systems on plant communities, wildlife populations, and livestock production.

Progress has been made recently on SCS research and education needs, Berg said, but more scientific information is needed to help reach conservation goals.

"This information," he said, "will give research and extension administrators, scientists, and specialists a better basis for support and guidance."

Soil Erosion Researchers Dedicate New Lab

The U.S. Department of Agriculture's new National Soil Erosion Laboratory on the Purdue University campus in West Lafayette, Ind., held its dedication ceremony on January 15. Director William C. Moldenhauer of USDA's Agricultural Research Service (ARS) says the facilities will enable researchers to originate and test new erosion-control concepts and practices in the laboratory and in the field.

The $4.3 million laboratory is the only one in the United States devoted exclusively to soil erosion by water, and it marks a new emphasis on soil erosion research. But before the laboratory was built, USDA and Purdue University had established a productive record of cooperative studies in the discipline, says Moldenhauer. In 1956, USDA started the Soil Loss Data Center at Purdue which analyzed erosion research data taken from locations throughout the United States.

With the new laboratory, which includes a tower that allows a 40-foot free fall, agricultural engineers and soil scientists will be equipped to

study simulated raindrops as they impact the soil after reaching their maximum speed. Moldenhauer says the improved simulation will help the researchers learn how variables such as soil texture, soil mineral content, and soil strength are related to the effects of rain on soil detachment and transport.

Presently four ARS scientists and engineers and a computer programmer are working in the laboratory in addition to support staff of Purdue University.

"We believe that the laboratory and the information it provides will foster an awareness by society in general for the need to control soil erosion and maintain productive soils to meet the world's food needs," says Moldenhauer. "A growing concern about soil erosion may lead to a willingness to look upon the expense of erosion control as an investment rather than strictly a cost."

Moldenhauer says farmers already want to protect their land, but the success or failure of soil conservation is influenced strongly by economics. Research information will lead to cost efficiency in erosion control efforts.

To help insure that research information is transferred quickly to the field, the Soil Conservation Service has detailed soil scientist David L. Schertz to work at the laboratory. His collaboration with ARS scientists also is aimed at keeping the research in close touch with farmers' needs. Other close contacts are maintained between ARS and the Forest Service, the U.S. Environmental Protection Agency, the U.S. Department of the Interior's Office of Surface Mining and Geological Survey, as well as the research, teaching, and extension staff of Purdue and other universities.

Keep America Beautiful Day Expands to Weeklong Observance

The Nation's first Keep America Beautiful Week will be observed Sunday, April 18–Saturday, April 24, 1982. The weeklong event expands the Keep America Beautiful (KAB) Day activities carried out in American communities for the past 11 years.

Both observances are sponsored by Keep America Beautiful, Inc., a nonprofit public service organization founded in 1953.

According to KAB President Roger W. Powers, the event gives civic groups, businesses, local officials, and other citizens the opportunity to show their commitment to community improvement through specific programs and to receive positive recognition for their cooperative efforts. KAB Day activities have included recycling, beautification, restoration of historic monuments, cleanups, educational efforts, and many others. A special award competition will honor the best KAB Week projects, Powers said.

KAB is dedicated to promoting individual responsibility for environmental improvement. Its major program, the Clean Community System (CCS), is a behavioral approach to waste handling now being implemented in 241 cities and counties in 35 States. KAB reports that litter reductions up to 80 percent are being achieved and sustained through the CCS.

The Soil Conservation Service is a member of the KAB National Advisory Council and serves on the Steering Committee.

For further information on KAB programs, contact Keep America Beautiful, Inc., 99 Park Avenue, New York, N.Y. 10016.

RCA Update

At the request of several Federal and State Government agencies, the U.S. Department of Agriculture extended the public comment period on the revised draft 1981 Program Report and Environmental Impact Statement of the Soil and Water Resources Conservation Act of 1977 (RCA). The extension of the comment period until January 29, 1982, allowed the public an additional 2 weeks to respond to the RCA program proposals.

In all, USDA received over 80,000 responses during the 84-day public comment period. Most respondents used a response form that USDA had distributed for this purpose. Soil Conservation Service State offices received, tabulated, and analyzed responses from residents of their State; prepared a report of the comments in the State; and sent the response report forward to the SCS national headquarters. In a number of States, staff members of other USDA agencies helped prepare the report.

USDA analysts in Washington, D.C., are now reading the State reports and analyzing computer-generated data. These analysts will consolidate all comments into a national report that Secretary of Agriculture John Block and his top staff will use in developing the final RCA program recommendations. Their report is scheduled for completion in the spring.

This summer, the Secretary plans to present to Congress, through the President, a recommended national program for soil and water conservation with a detailed policy for implementation.

James N. Benson,
writer-editor, Planning and Evaluation, SCS, Washington, D.C.

Water From Rocks

by Wayne Fjeseth
and Mary Lou Damoth

Jackson Rafalito of the Ramah Navajo Indian Reservation near Gallup, N. Mex., needed a watering facility for his livestock as part of his ranch conservation plan. He had already paid for drilling a well, which did not produce, and was at a loss as to what to do next.

A natural sandstone basin, discovered on top of one of his hills, provided the solution to his watering problem. With the help of modern technology, an age-old method of collecting runoff water from rock surfaces was developed into a rain catchment basin and water storage tank.

Rafalito used a tractor to clear the collection surface and, instead of carving channels in the rock, he poured concrete to form a catchment wall. He used a 4-foot diameter section of concrete pipe as a control device and installed a steel-rim tank for the storage tank.

Site preparation cost Rafalito $1,500. The storage tank, drinker, sediment trap, and other items cost $5,265, bringing the total cost to $6,765. Rafalito saved $5,478 over what he would have had to spend for a conventional well, windmill, and storage and drinking facility— provided he had had the water.

Through the cooperative efforts of the Bureau of Indian Affairs (BIA), the McKinley Soil and Water Conservation District (SWCD), the Soil Conservation Service (SCS), and the Agricultural Stabilization and Conservation Service (ASCS), the catchment basin was developed as part of Rafalito's ranch conservation plan. BIA provided the pipe to run the water from the collection site to the control device and steel tank, and the concrete culvert for the control device. Through the McKinley SWCD, SCS helped develop the conservation plan and provided technical assistance. ASCS provided cost-share funds through the Agricultural Conservation Program.

The cost and time needed for maintenance is minimal. After a major rainfall, the sediment trap in the control structure has to be checked and cleared of sediment, which may stop the natural flow of water to the storage tank.

When the first summer rainstorm came after the water system was complete and Rafalito saw water flowing into his storage tank, he knew his livestock watering problems were over.

Rafalito had seeded his range to 'Arriba' western wheatgrass, and in March 1981 after the wheatgrass was established, he said, "For the first time I can use all my grazing land. My sheep have enough to eat and drink."

Some of the planning considerations in developing a rain catchment basin are:

- Location of surfaces with low permeability, such as sandstone, limestone, or granite;
- Angle and uniformity of the surface for the basin;
- A suitable control point;
- The weathering characteristics of the surface;
- Surface area adequate for your needs;
- A suitable site for storage;
- Suitable sites for livestock drinkers near basin;
- Adequate rainfall for the time of year when grazed; and
- An alternate supply of acceptable water.

As a general rule, the yield will be 80 percent of the average annual precipitation measured in feet, multiplied by 7.5 gallons per square foot of surface. To calculate the required surface area, use 12.5 gallons per animal unit day.

This method must be as well planned as any other water development to improve livestock distribution and proper grazing use, but there are many areas where there may be no suitable alternatives. With the help of modern technology, an age-old method will yield water from rocks.

Wayne Fjeseth,
district conservationist, SCS, Gallup, N. Mex.

Mary Lou Damoth,
former public information specialist, SCS, Albuquerque, N. Mex.

New Mexico rancher Jackson Rafalito used a natural sandstone basin to collect runoff water for his livestock. He poured concrete to form a catchment wall (at left in photo); ran a pipe to a 4-foot diameter section of concrete pipe, which is the control device; and installed a steel-rim storage tank.

U.S. Army Recruits Conservation Tillage

by John M. Cross

In 1980, the U.S. Army began offering a no-till option for farmers who lease Federal land at the Army Ammunition Plant in Middletown, Iowa.

Of the 19,000 acres of land around the plant, the Army leases 7,800 acres to farmers. Five-year leases are offered on 52 tracts, each with its own management plan. Beginning with the eight leases which expired in 1980, the Army offered farmers an option of a continuous row crop rotation if they did not till, instead of more restrictive rotations needed to control erosion with conventional tillage.

The Middletown area loses an average 15 tons of soil per acre per year on sloping cropland with conventional tillage.

Farmers chose the no-till option on seven of the eight leases renewed in 1980. Iowa State University helped write management plans for two of the no-till tracts for research on no-till.

Don Nelson, an area farmer, leased the two research tracts. Each year, Nelson plants corn in three fields and soybeans in three fields, with three tillage systems: conventional, reduced, and no-till. Nelson uses a 2-year corn and soybean rotation in each field. Researchers study the economics of conservation tillage on these fields, which cover 20 to 100 acres each.

Researchers also study crop growth and yields and soil conditions in several 3.5-acre fields Nelson farms with different tillage systems.

Staff from Southeast Community College in nearby Burlington and staff from Iowa State University in Ames keep records of planting dates, soil moisture, labor, equipment costs, and amounts and costs of seed, fertilizer, lime, herbicides, and fuel used.

Researchers do not have reliable figures for the first 2 years on yields but expect results similar to those from a 5-year U.S. Department of Agriculture Agricultural Research Service study in Ames, Iowa, which found the average yields of corn and soybeans did not differ significantly among tillage systems.

But the Iowa State University researchers have found that no-till uses about one-third of the fuel and time that conventional tillage uses. The costs of seed, lime, and fertilizer were similar for all tillage systems, but the cost of herbicides used with no-till was greater than that with conventional tillage. When the researchers included machinery costs, no-till became the cheapest system per acre because farmers could spread the equipment cost over more acres and use smaller equipment than they could with the other systems.

Howard Bright, Soil Conservation Service district conservationist, worked with Sam Jennison, a Des Moines County Soil Conservation District board member, and other district board members to start the no-till option and the research project. The district members encouraged Iowa State University to do the study.

No-till in Des Moines County has grown from 160 acres in 1978 to 6,000 acres in 1981. SCS and district members expect farmers to use no-till on all 5,000 acres of land leased for row crops at the ammunition plant by 1984, when all the leases have been renewed.

Bright said a combination of no-till with terraces and other practices is the best way to conserve soil and water. But no-till alone is a first, inexpensive step that will prevent most sheet erosion from fields with slopes less than 6 percent.

John M. Cross,
retired public information officer, Midwest National Technical Center, SCS, Lincoln, Nebr.

Soybeans are no-till planted in corn stubble on land farmer Don Nelson leases from the Federal Government.

Management Tips

Readers are invited to submit "Management Tips" to the editor, *Soil and Water Conservation News*, Soil Conservation Service, P.O. Box 2890, Washington, D.C. 20013.

3–D Maps Aid Community Natural Resource Planning

The Soil Conservation Service in Massachusetts is using three-dimensional maps to make it easier for people to visualize their natural resources.

"Constructing a community 3–D model map isn't too complicated," said Normand Bernier, SCS engineering draftsman, Amherst, Mass. "We use enlarged blue-line copies of Geological Survey maps because they include contour topographic relief lines and show natural and manmade features. We have these maps enlarged to a 1-inch to 1,000-foot scale."

Enlarged photographic or electrostatic copies could also be used. They would provide an improved and longer lasting map image quality than blue-line copies. These copies are more expensive, however, and would increase the price of materials from $50 to about $250 per map.

The topographic lines mark elevations of land and enable map readers to determine contours of the land, watershed boundaries, mountain peaks, and wetland areas.

SCS specialists have used two methods in building the 3–D model maps. One method results in a model with a hollow core and involves using three blue-line copies of the same enlarged map. One copy serves as a base for the map. It is mounted with rubber cement on a sheet of one-tenth-inch thick chipboard. The other two copies of the map are also mounted on chipboard. On the hilly areas, alternate 50-foot contour lines are highlighted on each copy. (For the flatter lands along the coast, alternate 10-foot contour lines are highlighted.) On one copy the 50-foot, 150-foot, 250-foot, etc., lines are highlighted. On the second copy, the 100-foot, 200-foot, 300-foot, etc., lines are highlighted. Then the two maps are cut, like jigsaw pieces, along the highlighted lines until the top elevation lines—the mountain tops—are reached.

With the map pieces cut at every other contour line, each piece overlaps the piece beneath it. This provides adequate space for the rubber cement to hold the pieces in place. Working up from the base, pieces are mounted on top of each other as one would build steps.

According to Bernier, the one-tenth-inch chipboard makes the vertical scale 1 inch to 500 feet, which is double the scale of the map. The result is an exaggerated vertical scale with hills being twice their normal height in comparison to the horizontal measurements.

"This exaggerated height actually helps," said Bernier. "If we used a realistic scale, the map would look rather flat—something like the ground looks from a commercial airliner flying at 25,000 feet. The model makes it easier for people to visualize the hills and valleys in the community."

The other method used by the SCS specialists to make 3–D maps produces a solid core model. It is considerably heavier and stronger than the hollow core model, which has open space remaining under the map levels. Bernier prefers building the solid core type because it is much stronger and can be moved with little danger of coming apart.

In building a solid core model, blue-line copies of the Geological Survey map are made first. The number of copies depends on the height of the hills or mountains in the community. Thirty copies aren't unusual for communities in the Berkshire Hills of western Massachusetts, according to Bernier.

The solid core model starts with a base map mounted on the chipboard just as in the hollow core model. The blue-line copies are mounted individually on chipboard. Each 50-foot elevation line represents a layer of chipboard so each board is cut along each elevation line and the board glued into its proper position. In the

When three-dimensional model maps are made for mountainous areas, 30 or more layers of chipboard might be used.

higher elevations, less and less of the map needs to be used and less chipboard added. The finished product is a heavy but very stable 3–D model map of a community. The weight problem is handled by cutting the map into segments that can easily be butted together when in use. Chipboard comes in 40- by 60-inch sheets so the maps are usually cut into 20- by 30-inch or 30- by 40-inch sections. This also makes it practical to transport the model maps in a car.

Colors indicating land use can be added to the maps, and roads and streams highlighted, but all coloring should be done before the map sheets are cut.

SCS has produced seven of these 3–D model maps for Massachusetts communities. According to SCS specialists and community planners, the $50 for materials and 5 days' labor required for each map are well worth it.

Gordon S. Smith,
retired public information officer, Northeast National Technical Center, SCS, Broomall, Pa.

New Field Method for Measuring Residues

A Soil Conservation Service agronomist in Illinois is using an efficient and convenient new field method for measuring crop residue cover.

According to Richard L. Dickerson, SCS State conservation agronomist in Champaign, "The point-and-line method improves accuracy in figuring percentage of cover left after planting." Soil conservationists need an accurate method of measuring the amount of residue left in the field to determine how well a tillage system protects against erosion.

Estimating the amount and effectiveness of specific kinds of residue is necessary for developing a conservation plan which includes conservation tillage. When correct percentage of cover is known, it is possible to arrive at a quick, accurate estimate of overall protection afforded by the plan and the estimated amount of soil loss.

Dickerson experimented with several techniques, including the "tippy-toe" method, in which the measurer puts a mark on the toe of his or her shoe and takes 100 steps across a field. As the measurer walks, he or she counts how many pieces of residue fall under the mark to determine percentage of cover. Dickerson found the point-and-line method easiest to use, however.

The new tool used for the point-and-line technique is a ⅛-inch-diameter nylon rope, 50 feet long, with knots every 6 inches, which provides 100 points. The rope is wound onto a wooden reel and has two metal stakes to anchor the ends of the rope to the ground. One metal piece also serves as a handle for easy unwinding.

Using the device is as easy as stretching it over the surface of a field at a 45° angle to the rows and counting the residue under the knots. Every knot with residue under it counts as 1 percent. Thus, if 30 knots have residue under them, on the average, that field has 30-percent coverage. Any piece of residue under a knot that would intercept a raindrop should be counted. An alternative method to use, if the residue is heavy, is to count knots without residue under them and subtract from 100. A minimum of four samples should be taken at random in the measured area and averaged. Since most erosion control research in the past has been based on pounds of residue left, you might need to convert percentage of cover to pounds.

Determining percentage of cover after planting by using the point-and-line is a vast improvement over estimating pounds of residue by older methods. Some of the ways poundage has been estimated are by visual comparison using a series of photographs; collecting field samples, drying and weighing them, and converting the sample weight to pounds per acre; and by following "rule of thumb," such as a pound of residue for a pound of corn, or multiplying yields times the amount of residue produced per bushel, times the number and types of tillage operations.

The point-and-line is a more accurate way to measure residue because the distribution and the size of residue are important factors in predicting effectiveness of erosion control.

Dickerson worked with the Developmental Services Center, a not-for-profit community service agency which serves developmentally delayed, disabled, or vocationally handicapped persons in Ford and Champaign Counties. People in this sheltered workshop assembled the new tools for distribution to all Illinois SCS offices. The Illinois Agricultural Stabilization and Conservation Service and the Illinois Department of Agriculture, Division of Natural Resources, are now also using this new method for measuring crop residues.

Kay Kitchen Tynan,
public information specialist, SCS, Champaign, Ill.

Working With Municipalities—A Novel Approach

If the way to one's heart is through one's stomach, perhaps gastronomy is also a good approach to one's head. Assuming that topics as mundane as soil erosion and sedimentation are more palatable on a full stomach, the Dauphin County Conservation District in Pennsylvania has during the past few years conducted breakfast meetings for municipal officials. On a full stomach our audience of breakfast guests is more inclined to hear our conservation comments.

For the municipal officials, these breakfast meetings are a change in routine and an opportunity to exchange ideas with colleagues from other municipalities and to focus attention on an area of their work which, frankly, does not normally constitute top priority in their daily routine. The atmosphere of the meetings is informal and relaxed.

We have learned over the years in conducting these breakfast meetings that municipal officials do not have any regular forum to meet with officials from other municipalities. Those who have attended our meetings seem to appreciate the contact with their counterparts from other municipalities (code enforcement officers, township managers, etc.) which the breakfast sessions provide. Hence, the breakfast meetings serve as a vehicle not only for facilitating communication between the conservation district and local municipalities but also among municipalities. For those whose work involves planning and coordination of activities on a watershed basis, the importance of a good working relationship and communication among municipalities and between municipalities and conservation districts cannot be overstated.

Because our daily work as conservation district officials involves various aspects of conservation, we may feel that everyone should be as concerned as we are about matters such as soil erosion and stormwater management. In fact, however environmentally concerned they may be, municipal officials are probably not as concerned with these matters as we are. For that reason, they appreciate being occasionally reminded how important these matters really are.

Those who have attended our breakfast meetings have thanked us for drawing their attention to the importance of retaining natural vegetation, maintenance of control practices, the purpose and limitations of particular conservation measures, etc. They have requested that we conduct refresher courses on a regular basis (every 6 months). We have scheduled these meetings at times we feel will have maximum benefit for the municipal officials—late winter, immediately prior to the onset of earthmoving activities, and late summer, immediately prior to fall seeding time.

Brief presentations made at breakfast sessions have included the following:

- Conservation publications available for distribution from municipal offices;
- Reference materials available to municipal officials;
- Current legislation and its impact on local municipalities;
- Review of soil erosion and sedimentation control plans;
- Memorandum of understanding between conservation district and local municipalities; and
- Case histories of municipal involvement in specific earthmoving activities.

Representatives of the district's cooperating agencies have been involved in our breakfast meetings, and we have occasionally used slide presentations.

In summary, breakfast meetings have proven to be an effective and enjoyable educational vehicle for the Dauphin Conservation District. These meetings provide a forum for discussion and information among local municipalities as well as an opportunity to focus on conservation related topics.

Paul Swartz,
was district manager, Dauphin County Conservation District, Dauphin, Pa., and is now field representative, State joint legislative committee on air and water pollution control and conservation, Harrisburg, Pa.

Reprinted from the July–August 1981 issue of *Teamwork*, published by the Pennsylvania State Conservation Commission, Harrisburg, Pa.

Campaign Is on for Commemorative Stamp

One of the most powerful media for telling the public about conservation is the postage stamp. Soil conservationists all over the country are engaged in a new campaign to encourage the U.S. Postal Service to issue a commemorative stamp or stamps in late 1984 or early 1985 marking "50 Years of Soil Conservation." Letters and suggestions should be addressed to: Citizens' Stamp Advisory Committee, U.S. Postal Service, 475 L'Enfant Plaza, S.W., Washington, D.C. 20260.

Conservation Highlights 1981

Summary of Activities
of the Soil Conservation Service
for Fiscal Year 1981

In 1981, the USDA Soil Conservation Service assisted landowners in adequately protecting 48 million acres from soil erosion. This was an increase of 2 million acres over the previous year.

Several things contributed to the increase. One was the use of conservation tillage in combination with other conservation practices such as terraces, contour farming, grassed waterways, irrigation water management, waste management systems, and ponds. Conservation tillage leaves enough crop residue on the soil surface, year round, to protect the soil from erosion. It saves soil and energy and conserves moisture in water-short areas.

U.S. farmers recognized the value of conservation tillage and used various forms of it, including no-till, on an estimated 72 million acres of cropland in 1981, compared to about 65 million acres last year. No-till disturbs the soil the least and leaves almost all the residue on the soil surface.

In 1981, SCS accelerated its conservation assistance in areas with severe soil and water conservation problems. In parts of 15 States, SCS targeted its technical and financial resources on reducing erosion and improving irrigation efficiency and water quality. In 10 of those States with severe soil erosion problems, soil loss was reduced by 9 million tons on more than 1 million acres, mainly on cropland. Before receiving the accelerated assistance, 95 percent of the land in the targeted areas was losing more than the tolerable limit of 5 tons of soil per acre per year.

The close relationship SCS has with conservation districts; local, State, and other Federal agencies; and thousands of conservation-minded farmers and ranchers made these successes possible. Other highlights of SCS conservation activities during fiscal year 1981 follow.

Conservation Help for Units of Government
SCS employees furnished more than 100,000 services to 28,000 local and State governments during the year. SCS provides basic soil and water data used by local governments in preparing programs for land use and control of sediment and erosion.

Conservation Tillage
U.S. farmers used various forms of conservation tillage, including no-till, on an estimated 72 million acres of cropland in 1981, compared to about 4 million acres almost 20 years ago. Approximately 10 percent of the 1981 acres was no-till. SCS gives technical assistance to farmers using these modern tillage practices which save fuel, soil, and moisture.

Soil Research
Since 1980, USDA and four other Federal agencies have joined in a 6-year effort called Agriculture and Resources Inventory Surveys Through Aerospace and Remote Sensing (AgRISTARS). Crop production forecasts and inventory of renewable resources are two of the major applications of the program. SCS has the major responsibility for developing and testing new technology for determining soil moisture by remote sensing.

As part of a long-term effort to assess the distribution of acid precipitation, the SCS National Soil Survey Laboratory in Lincoln, Nebr., began analyzing snow samples collected during the SCS snow surveys for acidity and heavy metals. The laboratory also is continuing its major mission of providing analyses of soils to support the National Cooperative Soil Survey.

Soil Surveys
In fiscal year 1981, 119 soil surveys were published and 103 survey manuscripts with maps were sent to be printed. Close to 52 million acres were mapped during the year. Field mapping has been completed on about 67 percent of the acreage in the United States.

Soil Moisture Monitoring
SCS began a 5-year monitoring project in cooperation with the Agricultural Research Service in fiscal year 1979 to obtain information needed to predict soil moisture for large areas in the conterminous 48 States. By fiscal year 1981, SCS had established eight soil moisture measurement sites nationwide. Specialists take weekly measurements at the sites by 6-inch increments to a depth of 6 feet during the growing season. This project will provide some of the most detailed and coordinated soil moisture data assembled in the United States.

Snow Surveys
In the West, SCS had 479 SNOTEL automated data collection sites in operation by the end of fiscal year 1981. In addition, SCS snow surveyors took measurements of snow and other precipitation, temperature, and soil moisture at 1,600 snow course sites and issued 1,827 water supply forecasts.

Agricultural Conservation Program
Through the Agricultural Conservation Program (ACP), SCS provided technical assistance to 8,270 farmers and ranchers who installed enduring conservation practices on their land through long-term agreements. Among other practices, SCS assisted with 73,760 acres of irrigation water conservation measures and 54,750 acres of terrace systems. The Agricultural Stabilization and Conservation Service administers ACP and provides financial assistance to participating landowners.

Windbreaks
Windbreaks control wind erosion, save energy, and provide wildlife habitat. SCS assisted landowners to plant or restore 223,000 acres of windbreaks during the year.

Fish and Wildlife
In planning soil and water conservation systems in 1981, SCS helped landowners provide the most benefit to fish and wildlife for the least effort and cost. During the year, SCS also worked to improve its methods of inventorying and evaluating fish and wildlife habitat.

Plant Materials

SCS plant materials centers released 11 new conservation plants to commercial seed growers and nurseryowners in 1981. The releases included six grasses, two shrubs, one legume, one forb, and a cereal rye. Four of the grasses, suited to the Southwest, control erosion and provide food for livestock and wildlife. One native grass, suited to the Coastal Plain and Piedmont area, stabilizes gravel mines and infertile sandy soils. Another grass, suited to parts of California, stabilizes critically eroding areas and provides dryland range forage. The shrubs, both suited to the Southwest, provide food for livestock and wildlife and control erosion. A native legume, suited to Oregon and other western areas, controls erosion and provides wildlife food. An evergreen forb, suited to the Intermountain Region, is used in mixtures for range seeding, revegetating minespoils and other disturbed areas, and for wildlife food and cover. A cereal rye, suited to the Northeast, provides excellent cover for cold soils.

Recreation

Under the Food and Agriculture Act of 1962, SCS has USDA leadership in helping land users develop recreation resources and serves as liaison with other Federal, State, and local agencies that assist with recreation development.

In 1981, SCS continued to provide technical and financial assistance for establishing or expanding public recreation developments and assisted private landowners in developing commercial and noncommercial recreation facilities.

Range

Conservation practices adequately protected more than 25 million acres of range and native pasture from soil erosion in fiscal year 1981, a 6 percent increase. SCS intensified efforts to evaluate a form of short-duration grazing, called cell grazing. SCS also provided training for area and field office people on improved prescribed burning methods for controlling undesirable vegetation and improving forage production and quality.

Environmental Services

SCS reviewed 54 draft environmental impact statements and 66 final ones for other agencies and received and processed about 475 other environmental documents during the fiscal year.

SCS worked on revising its cultural resource rules and regulations for integrating cultural considerations into the conservation planning process. SCS also began revising its wetland protection rules and regulations.

Important Farmland Inventory

As authorized by Section 302 of the Rural Development Act of 1972, SCS has the leadership role in USDA for inventorying the Nation's prime agricultural areas. By the end of fiscal year 1981, SCS had published important farmland maps which delineate prime and unique farmland for about 700 counties. Another 300 maps are nearly completed.

Resource Inventories

All States were collecting data for the 1982 National Resources Inventory (NRI) as required by the Soil and Water Resources Conservation Act of 1977. The fieldwork is scheduled to be completed in fiscal year 1982 and the data to be released in 1983.

National Agricultural Lands Study

The final report of the National Agricultural Lands Study, carried out over 18 months under the leadership of USDA and the President's Council on Environmental Quality, was released in January 1981. The report recommends that State governments lead efforts to protect agricultural land and that a Presidential-level and/or congressional statement articulate the national interest in agricultural land. SCS has the leadership role in USDA for followup activities.

Great Plains Conservation Program

In the 10 Great Plains States, 725 farmers and ranchers signed long-term contracts to apply permanent conservation measures on 2.1 million acres, bringing the total acreage covered to date under Great Plains Conservation Program (GPCP) contracts to about 113 million. During fiscal year 1981, contracts were completed on 3.3 million acres.

Through GPCP, SCS provides technical assistance and cost sharing to landowners to minimize the hazards of recurring drought and wind and water erosion.

Rural Development

SCS, in cooperation with several other USDA agencies, participated in local Full-Time Family Farmer and Rancher Development Committees in 81 counties in 10 States to help new or part-time farmers and ranchers expand to successful full-time commercial operations.

SCS also provided conservation planning on 50 small family farm assistance projects.

Resource Conservation and Development Areas

During fiscal year 1981, work continued in the areas authorized for assistance under the Resource Conservation and Development (RC&D) program, and four new areas were authorized for assistance. Objectives of the program, which is under SCS leadership, are to improve the condition and use of the RC&D areas' natural resources, environment, and economic, cultural, and recreational opportunities for residents.

River Basin Studies

SCS has USDA leadership for water and related land resource planning assistance to Federal, State, and local governments. During the year, 61 river basin planning studies were in progress in 45 States, and 9 of the studies were completed. SCS also reviewed 44 water resource project reports prepared by other Federal agencies.

Colorado River Basin Salinity Control Program
Under Public Law 93–320, SCS is cooperating with the Bureau of Reclamation of the U.S. Department of the Interior to reduce salt loadings to the Colorado River. Under Title I of the act, SCS provides technical and financial assistance to landowners in the 65,000-acre Wellton–Mohawk Irrigation District in Arizona to improve onfarm irrigation water management. In 1981, SCS assisted with 39 salinity control plans for 4,800 acres. A total of 20,060 acres have been treated to date. Overall irrigation efficiency increased from an average of 55 percent to 80 percent.

Title II provides for USDA assistance in controlling salinity in irrigated salt-source areas in other parts of the Colorado River Basin. In 1981, SCS completed studies on the Moapa Valley, Nev., area and the Lower Gunnison River Colo., area, to identify irrigation improvements needed to reduce salt loadings to the Colorado River. USDA also continued technical assistance and cost-share support in the Uinta Basin, Utah, and Grand Valley, Colo. These two projects have served more than 700 farms and over 15,000 acres. Primary practices installed include land leveling, water control structures, ditch lining, pipelines, irrigation systems, and onfarm water management.

Water Quality Management Plans
The agricultural elements of water quality management plans required by Section 208 of Public Law 92–500 have been developed and approved in all but a few States. In cooperation with the U.S. Environmental Protection Agency, SCS is assisting State and local agencies to implement the plans. SCS has also authorized planning for several small watershed projects to solve problems identified in the plans.

Flood Plain Management
SCS completed 17 flood plain management studies and 51 reimbursable flood insurance studies throughout the Nation under Section 6 of Public Law 83–566. The studies included data on natural and beneficial values served by flood plains and management alternatives. Local units of government use this information to develop, amend, adopt, and implement flood plain management programs.

Emergency Assistance
Under Section 216 of the Flood Control Act of 1950 and Section 403 of the Agricultural Credit Act of 1978, SCS obligated an estimated $11 million in watershed emergency assistance to help States repair damage caused by floods and other natural disasters. About half of the obligated funds was used to continue the cleanup and aerial reseeding around Mount Saint Helens volcano to prevent new flooding and restore stream channels. Almost $3 million went to western Pennsylvania counties to remove debris and sediment from streams and stabilize streambanks following severe summer rainstorms.

Small Watershed Projects
During fiscal year 1981, 19 small watershed projects were completed, bringing to 533 the number completed since the program began in 1954. These Public Law 566 projects combine conservation measures and structural and nonstructural measures to reduce flood damage and provide watershed protection, agricultural water management, municipal and industrial water, recreation, and wildlife habitat.

Also during the year, SCS established a policy on small watershed protection projects which consist solely of land treatment measures. Under the new policy, after the SCS Chief approves a project for planning, the State conservationist can authorize work to begin. This should speed up project approval and allow State conservationists more flexibility in helping communities solve critical watershed problems.

Rural Clean Water Program
Thirteen experimental Rural Clean Water Program projects were funded in fiscal year 1980 and 8 more in 1981. Each project is required to have a minimal water quality monitoring program funded through State and local resources. SCS is providing technical assistance in developing water quality plans and coordinating water quality monitoring activities. The Agricultural Stabilization and Conservation Service is providing financial assistance in implementing the plans. Five projects were selected for comprehensive monitoring activities to document cause and effect relationships and the cost and effectiveness of conservation systems.

Rural Abandoned Mine Program
SCS administers the Rural Abandoned Mine Program (RAMP), authorized by Section 406 of the Surface Mining Control and Reclamation Act. Through the program, SCS provides technical and financial assistance to land users in reclaiming soil and water resources of rural lands adversely affected by past coal mining practices. By the close of fiscal year 1981, the program's third full fiscal year of operation, 132,000 tons of soil erosion had been controlled, 290 safety and health hazards had been eliminated, and water quality had been improved in 3,474 acres of lakes and 90 miles of streams.

International Activities
SCS sent 113 technical specialists on short-term assignments to 38 different countries to help them protect their soil and water resources and improve production. Most of the projects were funded by the Agency for International Development, the World Bank, and the United Nations. SCS also trained 198 representatives from various countries in resource management.

Summary of Progress Fiscal Year 1981

Progress in soil and water conservation programs assisted by the Soil Conservation Service.

Metric Conversion
To assist readers, information in the tables is given in metric as well as in units of common measure or "inch-pound" units.
A hectare is equal to 2.471 acres;
a kilometer is equal to 0.6214 mile;
a metric ton is equal to 1.1023 U.S. tons.

Progress Item		Fiscal Year 1981	Cumulative to Sept. 30, 1981
Conservation Plans and Related Services			
District cooperators	No.	53,529	2,288,661
	acres	35,039,033	823,541,387
	hectares	14,180,086	333,282,258
Individuals and groups assisted	No.	901,898	—
Technical services to land users	No.	2,188,037	—
Individuals and groups applying practices	No.	445,500	—
Conservation plans	acres	18,499,112	630,136,456
	hectares	7,486,480	255,012,443
Conservation plans revised	acres	14,460,242	—
	hectares	5,851,973	—
Federal land units in coordinated conservation plans	No.	34	—
Federal lands in coordinated conservaton plans	acres	1,709,592	—
	hectares	691,862	—
Conservation Help for Units of Government			
Technical services for area planning	No.	101,211	—
Land use and treatment site plan reviews	No.	22,710	—
Units of government assisted	No.	27,995	—
Resource plans	No.	928	—
Snow Surveys and Water Supply Forecasting			
Snow survey and water supply forecasts	No.	1,827	—
Resource Studies			
Resource studies	No.	5,317	—
Soil Surveys			
Soil surveys	acres	51,711,367	1,619,797,326
	hectares	20,927,280	655,522,259
Great Plains Conservation Program			
Contract applications received	No.	1,403	63,914
	acres	3,810,560	126,850,816
	hectares	1,542,111	51,335,764
Contracts signed	No.	725	58,829
	acres	2,107,895	112,606,748
	hectares	853,052	45,571,275
Contracts terminated	No.	128	4,080
	acres	255,201	5,092,747
	hectares	103,278	2,061,004
Contracts completed	No.	1,681	44,880
	acres	3,337,509	81,024,967
	hectares	1,350,670	32,790,318
Unserviced applications on hand	No.	4,501	—
Public Law 566 Watershed Projects			
Applications	No.	12	2,585
Authorized for planning	No.	25	1,829
Approved for construction	No.	12	1,239
Construction starts	No.	6	1,012
Projects completed	No.	19	533
River Basin Studies			
Initiated	No.	10	246
Completed	No.	9	100

Progress Item		Fiscal Year 1981	Cumulative to Sept. 30, 1981
Flood Plain Management Assistance			
Flood plain management studies completed	No.	17	220
Flood insurance studies completed	No.	51	353
Colorado River Basin Salinity Control Program			
Studies completed	No.	2	5
	acres	176,000	463,000
	hectares	71,226	187,373
Rural Abandoned Mine Program			
Contract applications received	No.	133	3,009
Contracts signed	No.	111	244
Unserviced applications on hand	No.	—	2,765
Land reclaimed	acres	966	1,379
	hectares	391	558
Safety and health hazards eliminated	No.	177	290
Water quality improved			
Lakes	acres	3,449	3,474
	hectares	1,396	1,406
Streams	miles	76	90
	kilometers	122	145
Erosion controlled	tons	53,000	132,000
	metric tons	48,081	119,750
Resource Conservation and Development Areas			
Applications on hand	No.	47	241
	acres	213,172,843	1,042,629,257
	hectares	86,269,770	421,945,805
Areas authorized for assistance	No.	4	194
	acres	14,481,409	829,456,414
	hectares	5,860,539	335,676,034
RC&D area plans accepted	No.	2	177
	acres	9,329,980	749,453,423
	hectares	3,775,791	303,299,645
RC&D measures completed	No.	1,561	18,193

Land Adequately Protected by Conservation Practices		
Cropland	acres	12,068,921
	hectares	4,884,220
Pasture and hayland	acres	5,457,823
	hectares	2,208,748
Range and native pasture	acres	25,338,464
	hectares	10,254,324
Forest land	acres	1,825,746
	hectares	738,868
Wildlife land	acres	2,729,887
	hectares	1,104,769
Recreation land	acres	128,658
	hectares	52,067
Other land	acres	249,381
	hectares	100,923
Total Land Protected	acres	47,798,880
	hectares	19,343,920

New Publications

Rivers of Energy: The Hydropower Potential

by Daniel Deudney

In this study, the author has determined that falling water is the source of one-quarter of the world's electricity; and, despite hydropower's prominence as an energy source, most of the energy potential in falling water remains untapped. The study concludes that if all economically available hydropower were harnessed, most of the world's electricity needs could be satisfied.

The book gives the history and future of hydropower; it discusses small-scale hydro facilities in developing countries, ways to make better use of existing dams, and new directions for all countries to take.

This book (Worldwatch Paper 44) is available for $2 from Worldwatch Institute, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036.

Soils and the Environment

by Gerald W. Olson

This publication is an introduction to soil surveys and their applications in improving soil utilization. Its purpose is to provide a key to understanding and interpreting soil maps and reports that describe and delineate the distribution of soils in landscapes.

Written in nontechnical terms for the layperson, the first part of the book explains how useful information about soils is prepared through soil profile descriptions, soil mapping, and the principles of soil taxonomy. The second part discusses such important applications as engineering interpretations, land classifications, and erosion control.

With 135 photographs, figures, maps, and tables, this book can be used as a reference and a teaching aid.

It is available for $29.50, hardbook, and $16.95, paperback, from Methuen, Inc., 733 Third Avenue, New York, N.Y. 10017.

Environmental Impact Analysis Handbook

Edited by John G. Rau and David C. Wooten

This book is a useful practical guide to environmental planners, analysts, and decisionmakers to formulate or work with an environmental impact assessment.

Every chapter is written by experts as a self-contained source of how-to procedures and recommendations for compiling a comprehensive environmental impact statement in a particular area.

Chapter one provides a concise review of the legislative and legal background, and a discussion of the general topics found in an environmental impact statement.

The book then focuses on six areas of critical concern, including socioeconomic impact analysis, air quality, noise quality, energy impact analysis, water quality impact analysis, and vegetation and wildlife impact analysis.

The concluding chapter shows how to "put it all together"—how to tabulate both the positive and negative impacts and how to present an overall conclusion on the total impact of the project.

This publication is available for $36.50 from McGraw–Hill Book Company, 1221 Avenue of the Americas, New York, N.Y. 10020.

Soil and Water Resources: Research Priorities for the Nation

by Soil Science Society of America

This publication is based on information developed at a national workshop held in February 1981 which included more than 100 scientists and soil and water conservation leaders. The goal of the workshop was to identify national research priorities regarding the uses, management, and conservation of our soil and water resources.

This executive summary contains an introduction, a listing of the six most important national research needs, summaries of the nine panel reports and recommendations, and a list of the workshop participants.

A limited number of single copies are available from the Soil Science Society of America, Inc., 677 South Segoe Road, Madison, Wis. 53711.

Cost Data for Landscape Construction

by Kerr Associates, Inc.

This second annual edition has 248 pages of up-to-date material, installation and total costs for over 2,600 construction items, and prices for 3,200 plant materials. Features of this book include a common/botanical plant index, step-by-step instructions, and a sample cost estimate worksheet.

For most items listed there are seven columns of information: description, unit, crew and equipment, per day, installation cost, materials cost, and total cost.

This reference can be used for setting budgets, estimating project costs, and for evaluating bids.

This book is available for $24.95 from Kerr Associates, Inc., Suite 100, 1942 Irving Avenue South, Minneapolis, Minn. 55403.

McGraw-Hill Encyclopedia of Environmental Science

Prepared by the staff of the McGraw-Hill Encyclopedia of Science and Technology

The environmental impact of human activity is of primary concern to scientists, engineers, business people, and the general public.

This book analyzes both the natural and the human influences on environmental conditions. It defines the entire spectrum of environmental problems—from climatic change to nuclear waste—and assesses the management and conservation practices, technologies, and laws required to deal with them.

This second edition contains more than 250 articles organized into two sections. The first section includes five feature articles on topics of broad and timely interest. The second section of alphabetically arranged articles deals with the basic concepts of environmental science. Each article was written by a specialist.

This edition contains 650 illustrations. There are bibliographies, cross-references, and an analytical index that will help the reader in seeking information.

A copy of this book may be purchased by sending a check for $34.50 to McGraw-Hill Book Company, Distribution Center, Princeton-Hightstown Road, Hightstown, N.J. 08520.

The Pesticide Manual, A World Compendium

by the British Crop Protection Council

The intention of this sixth edition is to include all chemicals and microbial agents used as active components of products to control crop pests and diseases, pests in public health, and animal ectoparasites.

The name used for each compound is the British Standards Institution common name. Each compound is described on a separate page or pages and arranged alphabetically in the text. Information given about each compound includes chemical structure, molecular formula and weight, nomenclature and development, manufacture and properties, principal uses, toxicology, formulations, and analysis.

This 655-page manual also includes six appendixes and four indexes.

This book is available for $65 from International Scholarly Book Services, Inc., P.O. Box 1632, Beaverton, Oreg. 97075.

SECOND CLASS MAIL

Meetings

April	23–25	American Horticultural Society, Washington, D.C.
	25–28	Association of American Geographers, San Antonio, Tex.
May	5–7	Hardwood Plywood Manufacturers Association, New Orleans, La.
	15–19	League of Women Voters of the United States, Houston, Tex.
	16–20	American Water Works Association, Miami Beach, Fla.
	23–27	National Council of State Garden Clubs, Inc., Los Angeles, Calif.
	26–28	Southern Forestry Conference, Lake Buena Vista, Fla.
June	6–9	American Institute of Architects, Honolulu, Hawaii
	6–11	General Federation of Women's Clubs, Bismarck, N. Dak.
	13–16	Garden Club of America, Rochester, N.Y.
	19–23	National Environmental Health Association, New Orleans, La.
	20–25	Air Pollution Control Association, New Orleans, La.
	20–24	Forest Products Research Society, New Orleans, La.
	20–24	Outdoor Writers Association, Spokane, Wash.
	27–July 1	American Seed Trade Association, Dallas, Tex.
	27–30	American Society of Agricultural Engineers, Madison, Wis.
	29–July 2	National Conference of Editorial Writers, Chicago, Ill.

New Publications

Challenging Careers in Soil Conservation

by the Soil Conservation Service

This color pamphlet describes briefly some of the conservation career opportunities the Soil Conservation Service offers, and gives the qualifications for each job. The jobs described are soil conservationist, soil conservation technician, soil scientist, range conservationist, engineer, and engineering technician. The pamphlet also lists other careers in SCS.

Copies are available from local and State Soil Conservation Service offices.

Pine and Juniper Diseases in the Great Plains

by Glenn W. Peterson

This publication (general technical report RM–86) summarizes research on five diseases of pines and three diseases of junipers.

Pines and junipers are widely used in the Great Plains for a variety of purposes—protection of soil, crops, wildlife, livestock, and homesteads; wildlife habitat; landscaping; and windbreaks.

Great Plains land managers, property owners, and others should find this publication useful since it emphasizes identification, control, and geographic distribution of diseases. In addition, physiological and morphological information on pathogens is included for researchers.

Single copies are available by writing the Rocky Mountain Forest and Range Experiment Station (RM), 240 West Prospect Street, Fort Collins, Colo. 80526.

Wetlands of Bottomland Hardwood Forests

Edited by John R. Clark and Jay Benforado

This book contains the proceedings of the Bottomland Hardwood workshop convened by the National Wetlands Technical Council in June 1980. The workshop was sponsored by six government agencies and was designed to assist them in their various roles in the management of bottomland hardwood wetlands of the southeastern United States.

This book should be of interest to all who work in the natural resource professions such as foresters, ecologists, botanists, wildlife and fishery biologists, and a variety of engineers.

This book is available for $80.75 from Elsevier North-Holland, Inc., 52 Vanderbilt Avenue, New York, N.Y. 10017.

Recent Soil Surveys Published

by the Soil Conservation Service

Arkansas: White County.
Connecticut: Windham County.
Georgia: Richmond County.
Indiana: Knox County, La Porte County, and Morgan County.
Iowa: Calhoun County and Poweshiek County.
Kansas: Barton County.
Minnesota: Chippewa County.
Nebraska: Colfax County.
New York: Orange County.
North Carolina: Washington County.
Ohio: Auglaize County.
Oklahoma: Latimer County and McIntosh County.
Utah: Sanpete Valley Area.
Vermont: Lamoille County.
Virginia: Richmond County.

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